or, substituting for α and δ in terms of the Sun's longitude and the obliquity of the ecliptic,

$$d\zeta = -\pi(\cos \odot \sin A - \sin \odot \cos \epsilon \cos A)$$

and

$$d\eta = -\pi(\cos \epsilon \sin A \sin D - \sin \epsilon \cos D) \sin \odot - \pi \cos \odot \sin D \cos A$$

in which $d\eta$ is the well known expression for the annual parallax in declination, while $d\xi$ is the parallax in R.A. multiplied by $\cos D$.

Dunsink Observatory, Co. Dublin:
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Photographic Observations of Comet b 1896.
By Professor Arthur A. Rambaut, M.A., Sc.D.

On the nights of 1896 April 29 and 30, May 8 and 11, photographs were taken of Comet *b* 1896 with the 15-inch reflecting telescope of the Dunsink Observatory. After that date, owing to increasing twilight and diminishing brightness of the comet, it could not be found in the 5-inch guiding telescope.

An exposure of ten minutes was given on each occasion, and except in the case of plate *c* on April 30 the movement was adjusted to sidereal rate, and the image of the comet accordingly appears as an elongated patch with ill-defined edges.

The middle point of the axis of this patch was taken as the position of the comet corresponding to the mean time of exposure.

The measures were made in the Troughton and Simms microscope, described in *Transactions of the Royal Irish Academy*, vol. xxx. part iv.

The microscope is provided with two screws, very approximately at right angles to each other, and readings were taken on both screws simultaneously.

The plate was then turned through exactly 90° by the position circle, and another set of measures taken. We thus obtained the rectangular coordinates independently on each screw, and these were separately reduced by the formulæ given in the preceding paper, the mean of the two being taken as the position of the comet given in the table below.

There is not the material for determining the probable error of these positions in the usual way, but an estimate of their precision may be gathered from the following results.

From the measures of $+51°, 686$ on plate *b*, which were

made at the same time as the others, but were not used in the reduction, I find

+51°, 686.	R.A. 1896·0.	Decl. 1896·0.
	h m s	° ′ ″
First Exposure	3 2 54·92	+51 58 30·8
Second Exposure	54·89	31·1

Compare No. 12 in the list of comparison stars below.

On plate *e*, too, the position of +65°, 217 was measured simultaneously with that of the comet, with the following results :—

+65°, 217.	R.A. 1896·0.	Decl. 1896·0.
	h m s	° ′ ″
First Exposure	1 51 12·62	+65 59 8·8
Second Exposure	12·60	8·6

It only remains to add that the position of the comet being by the mode of reduction referred to the mean positions of the stars for the beginning of the year, I have not thought it necessary to give its apparent R.A. and decl. as is usually done.

Observations of Comet b 1896.

Date.	Plate.	G.M.T.	Local Sidereal Time.	Mean R.A. of Comet.	Log $(p \times \Delta)$.	Mean Decl. of Comet.	Log $(q \times \Delta)$.	Reference Stars.
		h m s	h m s	h m s		° ′ ″		
1896. April 29	a	10 10 25	12 18 30	3 6 1·90	−9·5615	+50 0 47·9	−0·8761	14, 15, 16, 17.
30	b	10 9 35	12 21 36	3 1 9·59	−9·5616	+51 53 54·3	−0·8759	9, 10, 11, 13.
	b	10 23 48	12 35 51	3 1 6·70	−9·5272	+51 54 54·7	−0·8849	9, 10, 11, 13.
	c	10 38 56	12 51 2	3 1 5·72	−9·4853	+51 56 7·3	−0·8936	9, 10, 11, 12.
May 8	d	13 20 24	16 4 29	2 12 12·44	+9·5608	+63 2 31·0	−0·8648	5, 6, 7.
	d	13 34 54	16 19 1	2 12 8·38	+9·6094	+63 2 53·0	−0·8558	6, 7, 8.
11	e	12 47 31	15 43 20	1 51 30·25	+9·5999	+65 36 7·5	−0·8534	1, 2, 3, 4.
	e	13 2 11	15 58 ·3	1 51 26·09	+9·6489	+65 36 35·1	−0·8440	1, 2, 3, 4.

On plates *b*, *d* and *e* two exposures were made, and each exposure reduced separately.

In the case of *c*, the comet itself was kept on the cross-wires, and the stars allowed to trail on the plate. In the other cases, the guiding was done by the aid of one of the comparison stars.

On each occasion the comet appeared sensibly circular, with slight condensation towards the centre.

In the computation of $\text{Log}(p \times \Delta)$ and $\text{Log}(q \times \Delta)$ the adopted value of Sun's mean horizontal parallax is 8″·80.

The meridian-circle observations of the comparison stars were made by Mr. Chas. Martin.

Adopted Places of Comparison Stars, as determined by observations with the Meridian Circle at Dunsink.

No.	B. D.	Mag.	Mean R.A. 1896·0.	Mean Decl. 1896·0.	No. of Obs.	
			h m s	° ′ ″		
1	+65, 214	9·5	1 49 2·96	+65 15 44·1	1	
2	+65, 216	8·6	1 50 7·23	+65 56 52·2	2	
3	+65, 218	9·4	1 53 22·11	+66 0 41·2	2	
4	+65, 219	9·5	1 53 47·78	+65 12 52·5	2	
5	+62, 369	7·0	2 8 7·14	+62 45 2·5	2	
6	+63, 319	9·3	2 11 49·52	+63 11 56·8	2	
7	+62, 379	9·0	2 12 40·83	+62 52 19·2	2	
8	+63, 327	8·6	2 15 35·77	+63 15 13·2	2	
9	+51, 678	8·8	3 0 1·08	+51 55 47·8	2	
10	+51, 680	9·4	3 0 29·83	+52 2 53·3	2	
11	+51, 683	9·0	3 1 37·09	+51 42 41·3	2	
12	+51, 686	9·1	3 2 55·03	+51 58 30·9	1	
13	+51, 689	7·3	3 4 13·03	+51 46 8·5	2	
14	+49, 871	8·3	3 4 49·76	+49 52 10·4	2	
15	+49, 873	9·2	3 5 46·24	+50 3 44·7	2	
16	+49, 877	8·7	3 6 41·04	+49 59 23·4	1	
17	+49, 885	9·0	3 8 9·13	+49 43 38·3	2	S.p. of two.

Dunsink Observatory, Co. Dublin:
　1897 May 28.

Elements of Comet Perrine (f.) 1896 November 2.
By C. J. Merfield.

The following elements are based on observations taken by Mr. John Tebbutt, of Windsor, N.S.W., and kindly communicated to the writer some few days ago.

The selected places, after reducing the time to the meridian